

Advisory Circular

GUIDANCE ON FULFILLING AN AIR OPERATOR'S RESPONSIBILITIES

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GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 11 of the Air Navigation Act 1966 (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

PURPOSE

This AC provides guidance to an air operator and its agents (such as ground handling service providers, cargo terminal operators and load planning service providers) on fulfilling the air operator's responsibilities for the carriage of dangerous goods by air under regulation 17 of the Air Navigation (92 – Carriage of Dangerous Goods) Regulations 2022 ("ANR-92").

APPLICABILITY

This AC is applicable to:

- any foreign operator operating any aircraft into and out of Singapore for the purpose of commercial air transport, aerial work or general aviation;
- any Singapore operator;
- any operator of a Singapore registered aircraft operated for the purpose of general aviation; and
- any agent of an operator referred to above.

RELATED REGULATIONS

This AC relates specifically to Regulation 17 of ANR-92.

RELATED ADVISORY CIRCULARS

- AC 92-2-2 – Guidance on Dangerous Goods Carried in Passenger and Crew Baggage
- AC 92-2-5 – Dangerous Goods Permit
- AC 92-3-2 – Reporting of Dangerous Goods Occurrences

CANCELLATION

This is the first AC issued on this subject.

EFFECTIVE DATE

This AC is effective from 2 October 2026.

OTHER REFERENCES

- ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) (“ICAO TI”)
- ICAO Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481)
- IATA Dangerous Goods Regulations Manual

1. INTRODUCTION

- 1.1 The safe carriage of dangerous goods by air relies not only on shippers complying with requirements relating to classification, packing, marking and labelling, but also on an air operator effectively controlling the acceptance, handling and carriage of dangerous goods throughout the transport process. Failures in these controls may result in dangerous goods being improperly accepted, loaded, stowed or transported, creating hazards to aircraft and its occupants.
- 1.2 Regulation 17 of ANR-92 establishes the responsibilities of an air operator and its agents for the safe carriage of dangerous goods by air. This AC provides guidance to assist the air operator in fulfilling those responsibilities. It does not replace the ICAO TI, the IATA Dangerous Goods Regulations Manual, or the air operator's approved procedures set out in its operations manuals.

2. CARGO CONSIGNMENTS

- 2.1 This section provides guidance on compliance with regulations 17(1), (2) and (3) of ANR-92, which establish requirements for the acceptance, inspection, handling, loading and stowage of dangerous goods cargo.
- 2.2 An air operator typically engages the services of cargo terminal operators to accept cargo consignments for transport on its aircraft. An air operator should ensure that cargo consignments are accepted, handled and loaded in a manner that mitigates the safety risks associated with their carriage on aircraft.

Air Operators Without Specific Approval to Transport Dangerous Goods Cargo

- 2.3 An air operator that does not hold a specific approval to transport dangerous goods cargo should recognise that it remains exposed to the risk of hidden or undeclared dangerous goods being presented for transport as general cargo. Accordingly, such air operators should implement the controls described in paragraphs 2.4 to 2.8 with particular vigilance.

Accepting General Cargo (Non-Dangerous Goods) Consignments

- 2.4 When accepting general cargo consignments for transport on its aircraft, an air operator should ensure that staff of cargo terminal operators take appropriate measures to prevent hidden or undeclared dangerous goods from being inadvertently accepted for transport on its aircraft.
- 2.5 To support compliance with regulation 17(1)(b) of ANR-92, staff accepting general cargo should systematically inspect all packages for signs of hidden dangerous goods concealed within. Packages affixed with dangerous goods marks or labels, having a strong smell of flammable fumes or signs of oil stains should be subjected to further scrutiny. Cargo acceptance staff should also review descriptions of goods specified on the air waybills and on consolidation manifests (in the case of consolidated consignments). Descriptions matching those found in the Hidden Dangerous Goods

List (refer to subsection 2.2 of the IATA Dangerous Goods Regulations Manual) should be verified with the shipper or its agent to ensure that such consignments do not contain articles or substances that may be classified as dangerous goods.

- 2.6 Hidden dangerous goods may also be detected during security screening of general cargo consignments. Experience has shown that some types of dangerous goods such as aerosol products, gas cylinders, fire extinguishers and various types of batteries can be identified using the x-ray machine. An air operator should ensure that staff responsible for security screening of general cargo consignments have received dangerous goods training, are competent in identifying dangerous goods using screening equipment and are aware that they are expected to identify hidden or undeclared dangerous goods when screening cargo consignments.
- 2.7 Where hidden or undeclared dangerous goods are detected during acceptance checks, the affected consignment should not be accepted for carriage and should be withheld by the air operator or its service provider pending further action by the competent authority. An air operator should ensure that such a consignment is clearly identified and segregated to prevent inadvertent acceptance, handling or loading on an aircraft.
- 2.8 In accordance with regulation 24 of ANR-92, where hidden or undeclared dangerous goods are detected in Singapore, an air operator or its agents must report the occurrence to CAAS following the guidance in AC 92-3-2 – *Reporting of Dangerous Goods Occurrences*. Where such goods are detected at an overseas line station, a Singapore AOC holder must report the occurrence to CAAS and to the State of origin, and comply with the reporting requirements and guidance issued by that State.

Booking of Dangerous Goods Consignments

- 2.9 An air operator should use the consignment booking process as an early control measure to identify dangerous goods consignments that cannot be carried on the intended aircraft or flight. Early identification of such limitations supports compliance with the acceptance requirements in regulation 17(1) in ANR-92 and helps prevent consignments that cannot meet applicable requirements or limitations from entering the transport chain.
- 2.10 Prior to accepting a booking, an air operator should verify that the consignment can be carried on the intended aircraft and that all applicable regulatory, operational and aircraft limitations can be met. Examples of factors that may require consideration during this process include:
- restrictions applicable to dangerous goods permitted on cargo aircraft only;
 - limitations on the quantity or distribution of dry ice carried on the aircraft;
 - the ability to maintain the required separation distances for packages containing radioactive material;
 - limitations established through the operator's safety risk assessment; and
 - any conditions specified in applicable dangerous goods approvals or exemptions according to the ICAO TI.

- 2.11 Where a dangerous goods consignment cannot be accommodated on the intended flight while complying with the applicable requirements and limitations, an air operator should not accept the booking for that flight.
- 2.12 Where a dangerous goods consignment is intended for transport involving multiple flights or transfer between aircraft or air operators, the air operator accepting the booking should ensure that the consignment can continue to be carried in compliance with the applicable requirements and limitations throughout its planned routing, including on subsequent flights.

Accepting Dangerous Goods Consignments

- 2.13 In accordance with ICAO Annex 6, Part I, Operations of Aircraft, an air operator must be granted specific approval by the State of the operator prior to transporting dangerous goods cargo on its aircraft. Regulation 5 of ANR-92 further requires a commercial air transport operator, except as provided, to hold a valid dangerous goods permit granted by CAAS prior to transporting dangerous goods cargo on its aircraft to or from Singapore. An air operator may refer to AC 92-2-5 - *Dangerous Goods Permit*, for more information on the application and requirements for such a permit.
- 2.14 In accordance with regulation 17(2)(a) of ANR-92, the air operator must ensure that dangerous goods consignments are accepted using an acceptance checklist. The purpose of such a checklist is to confirm that each consignment meets all applicable ICAO TI requirements prior to being accepted for transport by air. Consequently, an air operator's dangerous goods acceptance checklist should be sufficiently comprehensive to aid acceptance staff in verifying that:
- accompanying documents (air waybill and dangerous goods transport document) are complete and accurate;
 - dangerous goods marks and labels applied to packages correspond with the information on the accompanying documents; and
 - outer packaging complies with the applicable packing instructions and is free from signs of damage or leakage.
- 2.15 An air operator should develop and implement the use of a dangerous goods acceptance checklist, or checklists, tailored to the type of consignment being accepted, including:
- fully regulated radioactive consignment;
 - fully regulated non-radioactive consignment; and
 - consignment containing dry ice used as a refrigerant for non-dangerous goods articles or substances.
- 2.16 After acceptance checks are completed, an air operator should ensure that accepted and rejected dangerous goods packages are clearly identified and segregated. Accepted packages may be marked "*OK to Load*" or "*Accepted*", while rejected packages may be marked with "*Do Not Load*" or "*Rejected*" and kept separate from cargo intended for loading in a ULD or on an aircraft.

- 2.17 Dangerous goods consignments that are rejected following acceptance checks should be returned to the shipper or its agents without delay. This is to avoid such packages from being mistakenly retrieved by loading staff for loading into ULDs or onto aircraft. Dangerous goods consignments that were previously rejected and re-offered for transport should be subjected to the complete acceptance process using a new acceptance checklist.
- 2.18 When accepting multiple consignments of homogenous packages from a single shipper and consigned to different consignees, clear segregation should be maintained. This is to prevent mix-ups when loading staff retrieve them for loading into ULDs or on aircraft, particularly when such packages have uniform appearance or sequential air waybill numbers.

Forbidden Dangerous Goods Consignments

- 2.19 An air operator should recognise the elevated safety risks of transporting forbidden dangerous goods on its aircraft. Dangerous goods identified in the ICAO TI as forbidden under any circumstances must never be transported by air. Those identified as forbidden unless exempted or approved may only be transported in accordance with the exemptions or approvals granted by the States concerned (i.e., the State of Origin, the State of the Operator, any State of Transit/Overflight, and the State of Destination), as specified in the ICAO TI.
- 2.20 Before transporting dangerous goods that are forbidden unless exempted or approved, an air operator should assess the operational safety risk associated with their carriage on its aircraft, ensure that staff accepting them verify that the relevant exemptions or approvals are in place, and ensure compliance with the applicable conditions specified in those documents during transport.

Cargo Aircraft Only (CAO) Dangerous Goods

- 2.21 An air operator of passenger aircraft should be aware of the risk of unintentionally transporting CAO dangerous goods on its passenger aircraft. Operational hazards contributing to such occurrences may include acceptance of CAO dangerous goods for carriage on a passenger flight, inadequate segregation during handling and storage, and erroneous loading despite the presence of a CAO handling label.
- 2.22 To mitigate this risk, an air operator should implement controls to prevent CAO dangerous goods from being transported on passenger aircraft. Such controls may include verification during acceptance that CAO dangerous goods are not booked on passenger aircraft, segregation from cargo intended for carriage on passenger aircraft during handling, and physical separation by using designated areas or zones for CAO dangerous goods during storage.

Handling of Company Material (COMAT)

- 2.23 An air operator should note that COMAT classified as dangerous goods does not fall under the exclusions in regulation 4(1) of ANR-92 where the items are intended as

replacements or have been removed from an aircraft for replacement. Such COMAT should therefore be treated as dangerous goods cargo and carried in accordance with the applicable ICAO TI requirements.

- 2.24 In such instances, an air operator should ensure that the COMAT is offered for transport through its cargo acceptance process and subjected to the same acceptance checks as other dangerous goods consignments. The air operator should also establish controls to prevent suppliers, aircraft technical/engineering service providers or line maintenance personnel from loading such items directly into the aircraft cargo compartment without being subjected to the applicable dangerous goods acceptance and operational controls.
- 2.25 An air operator should ensure that suppliers and aircraft technical/engineering service providers involved in offering COMAT for transport are able to identify when COMAT is classified as dangerous goods and are competent in preparing such items for transport in accordance with the applicable ICAO TI requirements.
- 2.26 Where COMAT classified as dangerous goods is transported as cargo to or from Singapore, the air operator should ensure that it holds a dangerous goods permit required under regulation 5 of ANR-92, even if the COMAT is intended for the operator's own use or support of its aircraft operations.

Accepting Unaccompanied Baggage Consigned as Cargo

- 2.27 An air operator may accept and transport unaccompanied baggage as cargo consignments on its aircraft. However, it should be aware of the risk of transporting undeclared or prohibited dangerous goods in such baggage since passengers may not be familiar with dangerous goods restrictions relating to air transport.
- 2.28 Prior to accepting such baggage, an air operator should verify with the person offering the baggage that it does not contain dangerous goods other than those permitted to be carried in checked baggage according to Part 8 of ICAO TI (corresponding to subsection 2.3 of the IATA Dangerous Goods Regulations Manual).

3. AIR MAIL

- 3.1 ICAO TI restricts the types of dangerous goods that may be accepted for carriage as air mail, subject to compliance with the relevant requirements. With increasing volume of e-commerce being accepted by designated postal operators (DPOs), an air operator should be aware of the risk of accepting prohibited dangerous goods in air mail articles, since most senders of such articles lack training and knowledge of transport safety regulations.

Accepting Air Mail

- 3.2 Prior to accepting air mail from a DPO for transport on its aircraft, an air operator should verify the DPO has:

- a. established procedures for controlling the introduction of dangerous goods in mail into air transport approved by the civil aviation authority of the State where the mail is accepted;
 - b. specific approval from the civil aviation authority to accept lithium batteries contained in equipment (UN3481 or UN3091);
 - c. dangerous goods training programmes approved by the civil aviation authority; and
 - d. ensured that its staff receive dangerous goods training commensurate with their responsibilities.
- 3.3 In Singapore, the DPO is the public postal licensee under the Postal Services Act 1999. Singapore Post Limited (SingPost) is the sole public postal licensee. CAAS has granted relevant approvals to SingPost to accept dangerous goods in air mail, including lithium batteries contained in equipment.
- 3.4 To prevent the carriage of prohibited dangerous goods in air mail, an air operator should implement measures or alternatively ensure that measures are implemented by DPOs or ground handling service providers, to detect and remove articles suspected to contain prohibited dangerous goods. These measures may include security screening of air mail articles and subjecting parcels affixed with dangerous goods marks or labels to additional scrutiny.

4. PASSENGER AND CREW BAGGAGE

- 4.1 An air operator should be aware of the risk of accepting dangerous goods prohibited for transport as passenger or crew baggage. Many inconspicuous everyday items such as lighter fluid, solvents, acids and bleaches are prohibited to be carried in checked or carry-on baggage. An air operator should ensure that all checked and carry-on baggage are subjected to screening so that prohibited dangerous goods concealed within baggage may be identified and prevented from being loaded onto its aircraft. Due to limitations in screening technology, an air operator should be aware that not all prohibited dangerous goods can be detected during screening.
- 4.2 While the primary purpose of security screening is to detect security prohibited articles in baggage, security screening staff are required to undergo dangerous goods training and are expected to identify prohibited dangerous goods subject to the limitations of security screening equipment. An air operator should verify that staff of security screening service providers assigned to perform security screening of baggage have undergone dangerous goods training and are aware that they are expected to also detect prohibited dangerous goods when screening baggage.

Accepting Carry-On Baggage for Check-In at the Passenger Boarding Gate

- 4.3 When cabin space in an aircraft is insufficient to accommodate all carry-on baggage, or when passengers arrive with oversized carry-on items, passenger handling staff may facilitate the late check-in of such baggage at the passenger boarding gate. However, passenger handling staff should be aware of the hazard of accepting dangerous goods not permitted in checked baggage for loading in the aircraft cargo compartment.

- 4.4 Prior to accepting any carry-on baggage for late check-in, passenger handling staff should verify with the passenger involved that such baggage does not contain dangerous goods not permitted in checked baggage. Given the time constraints of activities at boarding gates, passenger handling staff should conduct efficient verification through targeted questions (e.g., asking passengers whether they have packed any spare batteries, electronic cigarettes or power banks in their bag). If such items exist, passenger handling staff should request that the passenger remove them and, where permitted under the ICAO TI, carry such items into the cabin. It is recommended that passenger handling staff refer passengers to the dangerous goods information on notices placed at the passenger boarding gate when seeking verification from passengers.
- 4.5 Cabin crew should not remove carry-on baggage from the cabin on behalf of passengers and hand it over to ground staff for loading in the aircraft cargo compartment unless the same verification is made prior to doing so.

Accepting Dangerous Goods in Baggage Requiring an Approval or Advance Arrangements

- 4.6 In accordance with Part 8 of the ICAO TI, some dangerous goods are permitted to be carried by passengers in baggage only with approval from the air operator. Such dangerous goods usually have inherent hazards that contribute to the higher safety risk when transported by air and include items such as lithium batteries exceeding 100 Wh, mobility aids powered by batteries and oxygen cylinders for medical use. An air operator should verify that such items meet the applicable requirements prior to granting approval to passengers and accepting such items for carriage as baggage.
- 4.7 An air operator should ensure that:
- persons granting approvals for or on behalf of the air operator are authorised;
 - the applicable compliance elements are verified before approval is granted for each type of dangerous goods requiring air operator's approval; and
 - approvals are documented and retained for record purposes.
- 4.8 To avoid inconvenience to passengers, such approvals should preferably be granted prior to passengers arriving at the airport. An air operator should make reasonable efforts to communicate its requirements to its passengers during ticket purchase and at various passenger handling touch points, and to identify passengers who may be carrying dangerous goods requiring the air operator's specific approval prior to carriage on its aircraft.

5. INSPECTING DANGEROUS GOODS, UNIT LOAD DEVICES AND AIRCRAFT

- 5.1 This section provides guidance on compliance with regulation 17(3)(b), (d) and (f) of ANR-92, which require inspection of packages, overpacks, freight containers and unit load devices before loading and after unloading to ascertain that they are free from leakage or damage.

Inspection Prior to Loading

- 5.2 ICAO TI obligates the person responsible for loading an aircraft to sign on the NOTOC confirming that there is no evidence of any damage to or leakage from dangerous goods packages or ULDs containing such packages loaded on the aircraft. To fulfil this responsibility, the staff responsible for loading should conduct thorough inspections to verify compliance with safety requirements and to identify any potential hazards that may compromise flight safety.
- 5.3 Inspections should be conducted on:
- dangerous goods packages prior to loading them into ULDs or on an aircraft;
 - dangerous goods packages in transit that are already loaded on aircraft from preceding stations; and
 - ULDs containing dangerous goods packages in transit from preceding stations.
- 5.4 The inspection should verify that all dangerous goods packages and ULDs are in good condition, with relevant markings and labels, and are free from any signs of damage or leakage that could pose a safety risk during transport. The guidance in paragraphs 5.5 to 5.14 provides practical considerations for carrying out this inspection.

Inspecting Dangerous Goods Packages Prior to Loading

- 5.5 Ground staff should conduct a systematic visual inspection of each dangerous goods package, examining all surfaces of the package including the top, bottom, and all sides to identify any signs of damage or deterioration of the packaging.
- 5.6 The inspection should include checking for the following physical signs of package failure:
- dampness or wetting on the exterior, including any sign of moisture that may appear to look like water, could indicate an internal breach;
 - discolouration, staining, or "tide marks" on cardboard or wood packaging, which suggest a slow leak that has dried;
 - bulging or bloating, which indicates internal pressure changes or chemical reactions;
 - structural damage including cracks, dents, punctures, or crushed corners that may compromise the UN specification packaging's ability to withstand cabin pressure changes;
 - defaced or missing dangerous goods marks and labels;
 - loose or protruding contents; and
 - evidence of previous repairs or tampering.
- 5.7 Ground staff should pay particular attention to package corners, edges, and seams, as these areas are most vulnerable to damage during handling and transport. Ground staff should note that metal drums commonly sustain minor dents during normal handling operations. Such dents should not be considered as damage that renders the

package unfit for transport unless there is additional evidence, such as seepage or deformation of seals, that indicates the dent has compromised the integrity of the packaging.

- 5.8 During the inspection process, ground staff should also listen for audible signs that indicate the integrity of package contents has been compromised, including rattling or the sound of broken glass or sloshing inside a package that should contain articles or substances in solid state. Ground staff should also be alert to any unusual odours, chemical smells, or the presence of visible vapour emitting from packages. These audible and olfactory indicators suggest that the packaging has been breached, and the contents are escaping, suggesting that the UN specification packaging may no longer be maintaining its containment function and the package is unfit for air transport.

Checking Dangerous Goods Markings and Labels

- 5.9 Prior to loading, ground staff should verify that:
- hazard labels, handling labels and relevant dangerous goods marks (UN no. shipper and consignee name and address etc.) are clearly visible, legible and securely affixed to the package, ensuring that no labels are peeling, obscured by tape, or covered by shrink-wrap;
 - packaging orientation labels are affixed or pre-printed on two opposite sides of combination packaging containing liquids, with the arrows pointing upwards to correspond with the correct upright position of the package's opening; and
 - packages intended for loading on passenger aircraft do not bear the Cargo Aircraft Only label.
- 5.10 While the labelling of dangerous goods packages is the shipper's responsibility, an air operator or its agent may replace dangerous goods hazard and handling labels that become detached, go missing, or become unreadable after acceptance of the consignment by referring to the dangerous goods transport document. To facilitate replacement, the air operator should maintain spare labels or ensure that its service providers have access to spare labels. However, if required labels are found to be missing or unreadable at acceptance, the consignment should not be accepted until the shipper or its agent has corrected the non-compliance.

Inspecting Cylinders Containing Cryogenic Liquids

- 5.11 When inspecting cylinders containing cryogenic liquids affixed with the cryogenic liquid handling label (containing non-flammable, non-toxic gases in Division 2.2 of the ICAO TI), ground staff should be aware that such cylinders or vessels are designed with pressure relief systems that will release gases when there is pressure build-up within the cylinder. This gas release is a normal operational characteristic of cryogenic liquid containers and serves to regulate the internal pressure of the cylinder. Ground staff should not be alarmed by or mistake this normal venting process as an indication that the integrity of the cylinder has been compromised. However, ground staff should still verify that any gas release is occurring through the designated pressure relief mechanisms and not through damaged areas of the cylinder and should ensure that the cylinder markings and labels remain clearly visible and intact.

Inspection of ULDs Prior to Loading

- 5.12 An air operator should ensure that ULDs containing dangerous goods are inspected prior to loading on an aircraft. The purpose of this inspection is not limited to verifying the serviceability of the ULD but should also identify any evidence of leakage, contamination or damage that may present a hazard to dangerous goods consignments or the aircraft during transport.
- 5.13 When conducting the inspection, personnel should examine the ULD and, where applicable, any associated fire containment covers, liners and restraint devices for signs of:
- liquid staining, dampness or pooling of liquids;
 - corrosion or chemical attack of ULD components;
 - residues, powders or deposits that may indicate previous leakage of dangerous goods;
 - evidence of previous leakage that has not been adequately cleaned or decontaminated;
 - damaged floors, sidewalls or doors that may compromise containment of the load; and
 - damage to fire containment covers or other protective equipment intended to provide protection during transport.
- 5.14 Where evidence of leakage, contamination or damage is identified, the ULD should not be used for loading dangerous goods consignments or loaded on an aircraft until the source has been identified and appropriate measures have been taken to nullify any identified hazard.

Inspection During Unloading

- 5.15 Staff responsible for unloading dangerous goods packages from aircraft cargo compartments or ULDs containing such packages should conduct thorough inspections to verify that packages and ULDs have not been damaged or otherwise compromised, and have not leaked during transport. Ground staff may apply the inspection techniques described in paragraphs 5.5 to 5.8 and, where applicable, paragraph 5.12, with particular attention to identifying any new signs of damage, leakage or contamination that may have developed during transport.
- 5.16 Inspections should be conducted on:
- dangerous goods packages being unloaded from aircraft;
 - ULDs containing dangerous goods packages being unloaded from aircraft; and
 - dangerous goods packages being removed from ULDs.

- 5.17 The inspection should verify that all dangerous goods packages or ULDs remain in good condition with relevant markings and labels intact and are free from any signs of damage or leakage that may have occurred during transport.

Handling of Damaged or Leaked Packages

- 5.18 Packages that are found to be unfit for air transport should be immediately isolated and segregated from other cargo for further inspection and re-packaging as necessary. Ground staff should be aware that dangerous goods substances contain inherent hazards that may have corrosive effects on metal surfaces, ignite a fire when in contact with organic materials or be harmful to human health through contact, inhalation, or exposure. When dealing with damaged or leaking packages, ground staff should exercise extreme caution and immediately notify supervisory personnel. Professional hazardous materials services may be required to safely handle, clean up, or re-package such dangerous goods. A damaged package exhibiting signs of leakage of dangerous goods contents should not be handled further. Access to such packages should be restricted until proper measures are taken to nullify any identified hazard and appropriate technical expertise or the shipper has been consulted.
- 5.19 Some consignments may consist of multiple packages in homogeneous packaging, where dangerous goods substances are packaged using identical combination packaging and packing methods. When inspecting such packages, ground staff should be aware that leakage may occur due to failure of inner packaging and without visible damage to the outer packaging. This may indicate issues such as insufficient cushioning materials, inadequate securing of inner packaging, or defective inner receptacles that have failed during handling or transport. In such instances, ground staff should treat all identical packages within the consignment as unfit for air transport due to the likelihood of similar defects regardless of the outer packaging's apparent condition.
- 5.20 When damaged or leaked dangerous goods packages are discovered during unloading operations, ground staff should inspect the aircraft cargo compartment, ULD interior, and any cargo or baggage loaded adjacent to where the compromised packages were stowed when transported on the aircraft. This inspection should identify leaked substances, staining, corrosion, or damage originating from the compromised packages.
- 5.21 Any ULD (including peripherals), cargo or baggage found to be contaminated by the leaked dangerous goods should be immediately segregated for specialised handling and decontamination to nullify the hazard. Ground staff should be aware that cargo or baggage contaminated by leaked dangerous goods may not immediately show adverse reactions or visible signs of contamination. The contaminating substance may initially appear harmless, resembling water or other benign liquids. However, over time, certain dangerous goods may react with packaging materials, leather, plastic, or other components of cargo and baggage, potentially causing progressive damage or catastrophic reactions such as fires. This delayed reaction characteristic makes it critical to treat any suspected contamination seriously, even when no immediate damage is apparent. When there is any doubt about whether contamination has been successfully removed or hazards adequately nullified, the affected articles should not be transported by air.

- 5.22 Where spillage or leakage from damaged packages has contaminated transit baggage or cargo that is due to continue on a subsequent flight, such items should be removed from the aircraft and not be reloaded until they have been thoroughly inspected and decontaminated. An air operator should ensure that contaminated items are assessed by appropriately trained personnel to determine whether they are fit for onward transport. Items where contamination cannot be fully removed or where the integrity of the packaging has been compromised should not be transported by air until they have been re-packaged or otherwise rendered fit for transport.
- 5.23 Ground staff should notify aircraft maintenance personnel and supervisory staff of any signs of contamination discovered in the aircraft cargo compartment, as further inspections by qualified personnel and specialised services to nullify the hazard may be required before the aircraft can return to service.

Handling Aircraft Contaminated with Dangerous Goods Substances

- 5.24 When any part of an aircraft is found to be contaminated by dangerous goods that were previously transported on it, the affected aircraft should be taken out of service immediately and the contaminated areas inspected by qualified maintenance personnel before the aircraft is returned to service. The inspection should assess the extent of contamination and any structural or equipment damage caused by the leaked substance, and decontamination should be carried out in accordance with relevant procedures.
- 5.25 An air operator should be aware that operational pressure to return the aircraft to service quickly may inadvertently compromise the thoroughness of decontamination efforts, leading to contamination being inadequately assessed or prematurely cleared. The decision to return an aircraft to service should rest with relevant engineering personnel of the air operator based on the outcome of the inspection and decontamination and should not be influenced by operational or commercial considerations.
- 5.26 Where there is any doubt about whether contamination has been fully removed, or where the hazard characteristics of dangerous goods involved go beyond the competencies of engineering personnel to assess — such as spillage of highly corrosive substances or leakage of toxic liquids — specialised expertise should be sought before the aircraft is returned to service. This is particularly relevant for substances that may not be immediately visible or that may cause progressive damage to aircraft structures, wiring or components over time if not fully removed.

Handling Radioactive Contamination of Aircraft

- 5.27 Unlike contamination involving other classes of dangerous goods, radioactive contamination of an aircraft cannot be assessed through visual inspection alone. However, the mere presence of radioactive material on board an aircraft, or damage to the outer packaging of a radioactive material package, does not necessarily indicate that radioactive contamination of the aircraft has occurred. An air operator should consider the possibility of contamination where there are reasonable grounds to

believe that radioactive material may have escaped from its packaging, such as where there is:

- evidence of leakage from a package containing radioactive material;
- a breach of the package containment system;
- unexplained powders, liquids, residues or deposits found on or around a damaged package; or
- a package involved in a fire, severe impact, crushing event or other occurrence that may have compromised its integrity.

5.28 In accordance with regulation 17(3)(i) of ANR-92, an aircraft contaminated by radioactive materials must be immediately taken out of service and must not be returned to service until surveys confirm that both the radiation levels at any accessible surface and the non-fixed contamination do not exceed the values specified in the ICAO TI.

5.29 An air operator should recognise that it is unlikely to possess the specialist equipment and expertise required to conduct radiation surveys, assess contamination levels, oversee and perform decontamination activities and verify compliance with the release limits specified in the ICAO TI. An air operator should therefore establish advance arrangements with qualified radiation protection service providers so that such expertise can be mobilised without delay when needed. When engaging such service providers following any contamination event, the air operator should provide all available information regarding the radioactive material involved, such as radionuclide, activity, package type and transport documentation, to support the assessment and decontamination process.

5.30 Access to a contaminated aircraft should be restricted to authorised personnel until a qualified radiation protection service provider has assessed the extent of contamination and advised on the appropriate response. Ground staff and maintenance personnel who are not trained in radiation protection should not independently attempt to handle, clean up or decontaminate areas affected by radioactive contamination.

6. LOADING, STOWAGE AND UNLOADING DANGEROUS GOODS

6.1 This section provides guidance on compliance with regulation 17(3)(a) of ANR-92, which requires dangerous goods to be loaded, properly secured and stowed on the aircraft in accordance with the Technical Instructions. An air operator should ensure that dangerous goods are accounted for, loaded in good condition and stowed in a manner that will prevent damage during ground handling and flight.

6.2 During securing operations, an air operator should ensure that dangerous goods packages will not be damaged by the application of ULD netting or securing straps. Personnel should exercise care when tightening restraining devices to prevent crushing, puncturing, or other damage to dangerous goods packages that could compromise their integrity.

- 6.3 To protect dangerous goods packages from adverse weather conditions during staging, loading and unloading operations, packages loaded within ULDs should be adequately covered and protected using appropriate materials such as plastic sheeting. This protection should remain in place until the ULD arrives at its destination.

Pre-Build-up Verification and Tallying of Dangerous Goods Consignments

- 6.4 An air operator should recognise that failure to properly account for dangerous goods packages prior to loading into ULDs or on aircraft often results in pertinent information being omitted from the NOTOC document. To prevent such errors, an air operator should ensure that cargo personnel responsible for tallying and loading dangerous goods consignments are provided with ULD build-up plans, freight booking lists, freight on-hand lists, and cargo tally sheets and other relevant information. These documents should clearly identify consignments containing dangerous goods (e.g., by using IATA special handling codes).
- 6.5 Cargo personnel assigned to tally dangerous goods consignments should diligently account for the number of packages accepted for carriage from each shipper. The verification process should ensure that each package's air waybill number and destination, as indicated on the cargo label, matches the information specified on the freight booking list or equivalent documentation.
- 6.6 Loading personnel should be aware of the potential for loading errors when handling multiple consignments of homogeneous packages. Particular attention should be paid to consignments originating from the same shipper but destined for different destinations, especially when they have sequential air waybill numbers, are accepted at or around the same time, and are stored or clustered at the same staging location. Personnel should exercise additional care when verifying air waybill numbers on each package under such circumstances.

Verification of NOTOC Information Prior to Loading

- 6.7 Prior to loading ULDs containing dangerous goods on aircraft, personnel responsible for loading should verify that entries of hazard class/division numbers documented against the ULD numbers on the NOTOC correspond with the information displayed on the dangerous goods ULD identification tags. For loose dangerous goods packages loaded directly in aircraft cargo compartments of narrow-body aircraft not using ULDs, loading staff should verify that the NOTOC entries correspond with the planned loading positions in the loading instructions and hazard labels affixed to the packages.
- 6.8 This cross verification ensures that the NOTOC accurately reflects the dangerous goods being loaded and their intended stowage positions in the aircraft cargo compartments. Where discrepancies are identified, loading personnel should halt loading of affected ULDs or packages and resolve the inconsistencies before proceeding.

Considerations for Personnel Handling Multiple Flights Simultaneously

- 6.9 An air operator and its service providers should recognise that staff responsible for tallying or loading cargo consignments may concurrently handle cargo for multiple

flights to optimise productivity. In such circumstances, an air operator should ensure that appropriate controls are implemented to minimise the risk of loading errors. Such controls may include:

- (a) ensuring that personnel are allocated reasonable time relative to the volume of cargo involved for each flight, enabling them to complete assigned tasks while maintaining appropriate focus and minimising errors; and
- (b) providing sufficient work area to allow dangerous goods consignments for different flights to be physically separated, thereby reducing the likelihood of consignments being loaded into incorrect ULDs or transported on the wrong aircraft.

Adhering to Dangerous Goods Handling Labels

- 6.10 An air operator and its service providers should ensure that personnel responsible for loading and stowage adhere to all requirements associated with the handling labels affixed to dangerous goods packages. In accordance with ICAO TI, dangerous goods packages must be handled, loaded and stowed in a ULD or on aircraft in accordance with orientation labels, maintaining an upright position where specified. Single packaging containing liquids is not required to be affixed with orientation labels. However, such packages must be loaded with their closures facing upwards to prevent leakage during transport.
- 6.11 Dangerous goods packages bearing "Keep Away From Heat" handling labels typically contain self-reactive substances classified under Division 4.1 or organic peroxides classified under Division 5.2 of the ICAO TI. According to ICAO TI, such temperature-sensitive substances must be handled and loaded away from all sources of heat and protected from exposure to direct sunlight. When staging ULDs containing such consignments at aircraft parking bays, the ULDs should be positioned under shelter rather than in direct sunlight to prevent temperature increases leading to chemical reactions involving such dangerous goods.

Dangerous Goods ULD Identification Tags

- 6.12 In accordance with ICAO TI, ULDs containing dangerous goods must be affixed with dangerous goods ULD identification tags (distinguished by their prominent red hatched borders) meeting the applicable requirements of the ICAO TI. Since dangerous goods packages and their hazard labels may not be visible from the exterior of ULDs, dangerous goods ULD identification tags serve to identify such ULDs, and the classification of dangerous goods packages loaded within.
- 6.13 When using containerised ULDs, dangerous goods ULD identification tags are typically placed inside transparent plastic pockets affixed to such ULDs. With repeated use, these pockets often become dirty, scratched, or cloudy, impairing the visibility of the identification tags. Personnel should ensure that these plastic pockets remain sufficiently transparent to allow clear identification of dangerous goods ULD identification tags. Where necessary, such pockets should be cleaned or replaced to maintain clear visibility for identification and emergency response purposes.

- 6.14 When loading such ULDs onto the main deck of cargo aircraft, loading staff should position the dangerous goods ULD identification tags along walkways facing the sidewalls of the fuselage. This positioning ensures that the tags remain visible to flight crew and ground personnel when such ULDs are loaded on an aircraft.
- 6.15 When dangerous goods are unloaded from ULDs upon arrival at their destination, personnel should promptly remove the dangerous goods ULD identification tags to prevent confusion and ensure that empty ULDs are not mistakenly identified as containing dangerous goods for subsequent operations.

Stacking of Dangerous Goods Packages

- 6.16 Dangerous goods packages should be stacked only where the packages below can safely withstand the weight and stability of the load above. Stacking should not crush, deform, shift, topple or otherwise compromise the integrity of the packages.
- 6.17 When assessing whether dangerous goods packages are suitable for supporting stacked loads, loading personnel should consider the construction and strength of the packaging. Packages constructed of durable materials such as wood or metal, or those placed in appropriate overpacks, are generally better suited to supporting stacked loads. All packages should be adequately secured to prevent shifting, rolling, toppling, crushing or breakage during transport.
- 6.18 Dangerous goods packages containing liquids should generally not be stacked above other packages where leakage could damage or contaminate the packages below.

Loading and Stowage of Drums and Jerricans

- 6.19 Drums and jerricans, especially those containing liquids, are generally dense and should be handled and stowed to prevent puncture, rolling, movement or leakage.
- 6.20 Drums and jerricans should not be loaded horizontally and should be stowed upright with their closures facing upwards. When loaded on palletised ULDs, they should preferably be positioned away from ULD edges and protected from aircraft cargo loading system locking devices or other protrusions that may puncture or damage the packaging. Where positioning near the ULD edge is unavoidable, suitable measures should be taken to prevent contact with such devices or protrusions such as elevating the drums and jerricans above the level of aircraft locking devices.
- 6.21 Loose drums and jerricans should be secured, overpacked or palletised as necessary to prevent movement during handling and flight. Where other cargo is stacked above drums and jerricans, suitable intermediate dividers or pallets should be used to provide a stable load platform and prevent damage to the packaging. Where appropriate, ULDs may be lined with plastic sheeting to help contain any leakage in the event of damage to the packaging.

Use of Forklifts for Loading / Unloading Dangerous Goods Packages

- 6.22 Due to the size and weight of some dangerous goods packages, loading personnel often need to utilise forklifts to aid in loading and unloading dangerous goods packages.

An air operator should be aware of the associated safety risks and implement appropriate measures to prevent damage to dangerous goods packages, ULDs or even aircraft.

- 6.23 Personnel operating forklifts should be adequately trained, qualified, and exercise care when doing so. Forklift operators should exercise caution to prevent overshooting pallets, as fork tips may damage dangerous goods packages positioned behind the target load. When operating in confined spaces with limited manoeuvrability, the forklift operator should be assisted by another staff member to guide operations and reduce the risk of crushing or damaging packages. When double stacking loads, the forklift operator should ensure that loads are properly centred and stable before lifting to prevent toppling of loads.

Segregation of Incompatible Dangerous Goods

- 6.24 Regulation 17(3)(j) of ANR-92 requires that packages containing dangerous goods which might react dangerously with one another must not be stowed next to each other or in a position that would allow interaction in the event of leakage. An air operator should ensure that segregation of incompatible dangerous goods is considered during ULD build-up and aircraft load planning.
- 6.25 Loading of incompatible dangerous goods within the same ULD should be avoided wherever possible. If unavoidable, packages should be positioned at the furthest possible distance from each other within the ULD. Additionally, incompatible dangerous goods in liquid state should not be loaded at or near the top of a ULD to minimise the risk of leakage onto other packages.
- 6.26 An air operator should recognise that errors in load planning may result in incompatible dangerous goods being inadequately segregated when loaded on an aircraft. Where practicable, load planning systems should be used to aid compliance with segregation requirements by preventing ULDs containing incompatible dangerous goods from being assigned to adjacent positions within the same cargo compartment.
- 6.27 For incompatible dangerous goods packages that are not unitised in ULDs, such packages should be loaded in different aircraft cargo compartments to ensure adequate segregation is maintained during transportation.

Loading of Cargo Aircraft Only (CAO) Dangerous Goods

- 6.28 An air operator should ensure that packages bearing the CAO handling label are loaded on cargo aircraft in Class C cargo compartments or in ULDs equipped with fire detection and suppression systems equivalent to that of Class C cargo compartments as determined by the appropriate national authority.
- 6.29 Class C cargo compartments provide enhanced safety features including approved smoke or fire detection systems that alert the flight crew, built-in fire extinguishing systems controllable from the cockpit, and means to exclude hazardous smoke, flames, or extinguishing agents from areas occupied by crew or authorised persons. Typically located in the lower deck of cargo aircraft, these compartments also feature controllable ventilation systems that enable effective fire suppression.

- 6.30 In the event that a Class C cargo compartment or its ULD equivalent is unavailable, CAO dangerous goods should be loaded in such a manner that crew members or other authorised personnel can access the packages in the event of an emergency. On aircraft with accessible walkways on the main deck of cargo aircraft, CAO dangerous goods packages should be positioned along walkways facing the sidewalls of the fuselage. However, on aircraft where crew access to the main deck cargo compartments is limited to specific positions (such as the first ULD position behind the cockpit), CAO dangerous goods packages should be loaded in those accessible positions to enable crew access for handling during emergency situations.

Maintaining Separation When Loading Radioactive Material Packages

- 6.31 An air operator should ensure that packages of radioactive material are loaded in the position identified during load planning to comply with the applicable separation requirements. When determining the stowage location of such packages, load planners and loading staff should consider the package's final position relative to areas of the aircraft occupied by persons. Compliance with the separation distances specified in the ICAO TI should not be based on the thickness of cargo compartment structures between the package and the occupied area.
- 6.32 Packages of radioactive material should be loaded at the base of a ULD or directly on the cargo compartment floor. This positions the package as far as practicable from areas of the aircraft occupied by persons, thereby providing an additional margin of safety.
- 6.33 When operational changes occur, such as the need to reposition a package due to unserviceable ULD locks, a change of aircraft, changes to ULD build-up or last-minute cargo movements, load planners and loading staff should review the position of radioactive material packages to ensure that the required separation distances continue to be maintained.
- 6.34 An air operator should also ensure that packages of radioactive material are adequately restrained to prevent movement during flight. Movement of a package from its planned position may reduce the separation distance from occupied areas of the aircraft and result in non-compliance with the applicable separation requirements.

Loading of Dry Ice

- 6.35 The quantity of dry ice that may be carried on an aircraft is dependent on the aircraft's ventilation characteristics and its ability to safely disperse carbon dioxide gas generated through sublimation. An air operator should establish and document dry ice loading limitations and procedures based on the guidance provided by the aircraft manufacturer for the aircraft type and configuration being operated. Such limitations may include restrictions on the quantity of dry ice permitted in individual cargo compartments and on the aircraft as a whole.
- 6.36 Dry ice carriage limitations published by aircraft manufacturers may be based on different assumed sublimation rates. An air operator should recognise that the actual sublimation rate of dry ice loaded on its aircraft may vary depending on factors such

as packaging design, packaging condition, the physical form of the dry ice (e.g. block or pelletised dry ice) being carried among other factors. Unless supported by appropriate technical substantiation demonstrating that a lower value is representative of the consignments being carried, an air operator should use a sublimation rate of 2% per hour when determining the maximum quantity of dry ice that may be carried on an aircraft. This rate is consistent with guidance from major aircraft manufacturers and has been demonstrated through operational experience to provide a conservative basis for determining dry ice loading limitations.

- 6.37 Operational changes such as aircraft substitutions, changes to cargo compartment allocations, modifications to ULD build-up and last-minute cargo movements may affect the quantity and distribution of dry ice within the aircraft. As approved dry ice restrictions may be affected by both the total quantity of dry ice carried and its distribution within the aircraft, concentrating large quantities of dry ice within a single cargo compartment or ULD may not be consistent with the associated loading limitations and procedures. An air operator should therefore review the loading arrangement whenever such operational changes occur to ensure continued compliance with the dry ice loading limitations and procedures established for the aircraft.

Handling Transit and Transfer of Dangerous Goods Consignments

- 6.38 Dangerous goods consignments in transit or transfer should remain clearly identifiable and controlled throughout handling, load planning and loading for onward carriage. An air operator should ensure that accompanying information, ULD identification, loading instructions and NOTOC information remain accurate and consistent throughout the transit and transfer process.
- 6.39 Before a dangerous goods consignment is processed for onward carriage, an air operator should verify that the applicable loading, segregation, separation, dry ice and aircraft-specific requirements continue to be met for the onward flight.
- 6.40 Dangerous goods consignments in transit or transfer have already undergone one or more stages of handling and transportation prior to arriving at a station. An air operator should therefore ensure that such consignments and any associated ULDs are inspected as appropriate to verify that they remain free from evidence of damage, leakage or contamination.
- 6.41 Where damage, leakage or contamination is identified, the affected consignment or ULD should be handled in accordance with the guidance on inspection and contamination response in paragraphs 5.24 to 5.26. Dangerous goods consignments or ULDs should not be processed for onward carriage until any identified hazards have been appropriately assessed and nullified.

7. OPERATIONAL SYSTEMS AND AUTOMATED SAFETY CONTROLS

- 7.1 Where practicable, an air operator should use operational systems and automated controls to support compliance with dangerous goods requirements. Such controls can

reduce the likelihood of human error by providing validation checks, alerts and system restrictions throughout the dangerous goods transport process.

7.2 Examples of such controls include:

- identifying dangerous goods bookings that do not comply with aircraft-specific limitations, dangerous goods restrictions, or conditions established through the air operator's safety risk assessment;
- identifying incomplete or non-compliant dangerous goods transport documents prior to acceptance of the consignment;
- preventing the allocation of incompatible dangerous goods to adjacent positions;
- identifying non-compliance with the separation requirements applicable to radioactive material;
- monitoring compliance with approved dry ice loading limitations;
- ensuring that all dangerous goods consignments accepted for carriage and loaded into ULDs or on aircraft have been accounted for (e.g. by requiring each package to be electronically scanned during build-up and loading operations); and
- preventing dangerous goods packages from being assigned to aircraft types, cargo compartments or loading positions that are not approved for their carriage.

7.3 Where automated controls are implemented, an air operator should periodically verify that the controls remain current, reflect the latest operational requirements and continue to function as intended.

8. SUPERVISION AND OVERSIGHT OF DANGEROUS GOODS OPERATIONS

8.1 An air operator should maintain supervision of dangerous goods operations commensurate with the scale, complexity and risk profile of its operations. This includes supervision of dangerous goods activities performed by the air operator's own personnel and by contracted service providers. Once personnel have been assessed as competent, supervision need not involve constant direct oversight but should include periodic monitoring and verification. Closer oversight should be applied where risk factors warrant it, such as during periods of high operational activity, following changes in procedures, or where performance concerns have been identified.

Supervisory Responsibilities and Competencies

8.2 An air operator should clearly define supervisory responsibilities for dangerous goods operations and ensure that these are documented in the operations manual. Supervisory personnel should possess the necessary dangerous goods knowledge and relevant operational experience to effectively oversee the processes under their charge. It is not sufficient for supervisory staff to hold a dangerous goods training certificate alone — they should have a sound working knowledge of the air operator's procedures and the practical experience to identify deviations from those procedures when they occur.

- 8.3 An air operator should ensure that supervisory roles are assigned to personnel with sufficient seniority and authority to intervene when non-compliance is identified and to direct corrective action without undue delay. Where supervisory responsibilities are shared across shifts or across different functional areas, an air operator should ensure that handover arrangements are in place so that supervisory continuity is maintained throughout all operational periods.

Supervision of Air Operator's Employees

- 8.4 An air operator should ensure that supervisory personnel actively monitor critical dangerous goods processes, including acceptance checks, loading and stowage, documentation, and the provision of information to flight crew. Supervision should not be limited to administrative oversight. Instead, supervisors should be present at or near operational areas during critical activities to observe whether staff are adhering to established procedures in the operations manual (e.g., Ground Services Manual, Cargo Procedures Manual, etc.).
- 8.5 Supervisors should pay particular attention to staff who have recently completed dangerous goods training and acquired the necessary competencies but are still building operational experience. Such staff should receive closer guidance and more frequent oversight until they have demonstrated consistent and reliable performance in their assigned roles.
- 8.6 An air operator should also recognise that operational pressures, such as tight turnaround times, high cargo volumes, or concurrent handling of multiple flights, can increase the likelihood of procedural lapses. Supervisors should be alert to such conditions and provide additional oversight during periods of elevated operational activities.

Supervision of Contracted Service Providers

- 8.7 Where an air operator engages ground handling service providers or cargo terminal providers to perform dangerous goods-related tasks on their behalf, that air operator retains responsibility for ensuring that such functions are carried out in accordance with the procedures in its operations manual. The air operator's supervisory obligations therefore extend to encompass the activities of contracted service providers.
- 8.8 An air operator should implement measures to verify that staff of its service providers are performing dangerous goods related tasks in accordance with its procedures. This may include deploying the air operator's own personnel to observe operations at cargo terminals and aircraft loading areas, conducting periodic accompanied checks alongside service providers' own supervisory staff and reviewing operational records and documentation produced by its service providers.
- 8.9 Where an air operator does not have its own personnel at certain line stations, it may rely on contracted service providers for day-to-day supervision of dangerous goods operations. This is acceptable provided that the air operator has established other measures to ensure that its procedures are being followed. Such measures may include periodic audits and inspections, remote review of operational records and

documentation, and investigation of discrepancies or incidents reported by service providers. The frequency and depth of such assurance activities should be commensurate with the risk profile of the station and the complexity of dangerous goods operations conducted there.

- 8.10 Contractual arrangements with service providers should clearly specify the dangerous goods procedures that service provider staff are required to follow, the supervisory standards expected of the service provider, and the air operator's right to conduct oversight activities including inspections and audits of the service provider's dangerous goods operations.

Quality Assurance Programme

- 8.11 An air operator should ensure that carriage of dangerous goods activities is included within the scope of the quality assurance programme of its quality system. This should cover both the air operator's own operations and dangerous goods activities performed by service providers on its behalf. The scope, frequency and depth of oversight activities should be commensurate with the nature, volume and complexity of the air operator's dangerous goods operations. Findings identified through such activities should be addressed through the air operator's established corrective action processes.

9. RECORD RETENTION

- 9.1 In accordance with regulation 17(4) of ANR-92, an air operator must retain specified dangerous goods documents for at least 3 months after the flight on which the dangerous goods were carried. This applies equally to agents of the air operator who retain such documents on the operator's behalf. Where such documents are held by a contracted service provider on behalf of the air operator, the air operator remains responsible for ensuring that the documents are retained in accordance with regulation 17(4) and made available upon request by CAAS. An air operator should therefore ensure that contractual arrangements with service providers include provisions requiring the retention of such documents for the required period and obligating the service provider to make such documents available to the air operator or CAAS upon request.

Collating and Organising Records

- 9.2 An air operator should ensure that dangerous goods documents are collated promptly upon completion of each flight. Delays in gathering such documents increase the risk of records being misplaced or lost, particularly where documents are generated by different parties at different locations. An air operator should identify the personnel responsible for collating dangerous goods documents after each flight and ensure that such responsibilities are clearly defined. Once consolidated, retained documents should be organised and stored in a systematic manner that allows specific records to be readily traced and retrieved without undue delay, for example by flight number, date or air waybill number.

Format of Retained Records

- 9.3 Where documents are retained in paper form, they should be stored in a secure location that protects them from loss, damage or unauthorised access. An air operator is encouraged to retain dangerous goods records in electronic form to reduce physical storage requirements, enable faster retrieval of specific records, and enhance resilience against loss or damage. An air operator should ensure that the electronic records are accurate reproductions of the original documents, are stored in a secure system with appropriate access controls and remain legible and retrievable throughout the required retention period. An air operator should also ensure that electronic records can be reproduced in printed form that faithfully represents the original document in its format and layout. For example, a dangerous goods transport document retained in electronic form should be reproducible as a printed dangerous goods transport document and not merely as a printout of raw data fields extracted from a system.

10. DANGEROUS GOODS IN THE AIRCRAFT CABIN AND FLIGHT DECK

- 10.1 In accordance with regulation 17(3)(g) of ANR-92, dangerous goods must not be carried in the aircraft cabin occupied by passengers or on the flight deck, except as permitted in the ICAO TI. An air operator should ensure that all personnel involved in ground handling, passenger handling and cabin operations are aware of the types of dangerous goods permitted in the cabin and take appropriate measures to prevent prohibited dangerous goods from being inadvertently loaded or stowed in the cabin or on the flight deck.

Dangerous Goods Permitted in the Aircraft Cabin

- 10.2 Dangerous goods may be carried in the aircraft cabin or flight deck under the following circumstances:
- Passenger and crew baggage — Dangerous goods carried by passengers and crew in accordance with Part 8 of the ICAO TI may be carried in the cabin subject to applicable quantity limits, conditions and, where required, the air operator's approval. Such articles may include portable electronic devices, spare lithium batteries and e-cigarettes. An air operator should refer to AC 92-2-2 — *Guidance on Dangerous Goods Carried in Passenger and Crew Baggage*, for additional guidance.
 - Dangerous goods in operator's property — Certain articles and substances carried by the air operator are excluded from ANR-92 according to regulation 4(1) and may be present in the cabin without being subject to the regulations. These include consumer products (e.g., aerosols, alcoholic beverages, perfumes etc.) carried for use or sale on the aircraft, dry ice used in food and beverage services, alcohol-based hygiene products carried for passenger and crew hygiene and first aid kits.
 - Aircraft required equipment — Articles and substances required to be aboard the aircraft in accordance with the relevant airworthiness requirements, such as portable fire extinguishers, crew portable oxygen and protective breathing equipment and chemical oxygen generators installed in the cabin are excluded

from ANR-92 under regulation 4(1)(a) and may be carried as part of the aircraft's required equipment.

- State of the operator authorisations — Where CAAS has granted an approval for the carriage of specific dangerous goods on board the aircraft, articles such as operator-provided portable electronic devices for use by crew members or by passengers as in-flight entertainment devices and electronic flight bags approved under ANR-121, may be carried in the cabin in accordance with the conditions of those approvals. The air operator should ensure that the use, handling and stowage of such items on board the aircraft are in accordance with the procedures specified in its operations manual.

Preventing Unauthorised Dangerous Goods from Being Loaded in the Cabin

- 10.3 In accordance with regulation 17(3)(g) of ANR-92, dangerous goods cargo that has been accepted for transport as cargo must not be loaded in the aircraft cabin or flight deck. An air operator should ensure that dangerous goods consignments are loaded only in the aircraft cargo compartments and are not inadvertently introduced into the cabin. Ground staff and crew members should be aware that the presence of packages affixed with dangerous goods hazard labels or markings intended to be carried into the aircraft cabin or found in the cabin of aircraft warrants immediate attention and should be reported to supervisory staff or the pilot-in-command without delay.

Discovery of Suspected Dangerous Goods in the Cabin

- 10.4 Crew members should remain alert to the presence of packages or items bearing dangerous goods marks or labels, unusual odours such as the smell of flammable fumes, or visible signs of leakage.
- 10.5 Where such items are discovered prior to the aircraft departing, cabin crew should immediately notify the pilot-in-command and ground staff. The item should be assessed by trained personnel and, where necessary, removed before departure.
- 10.6 Where suspected dangerous goods are discovered after departure, cabin crew should immediately notify the pilot-in-command. The pilot-in-command should assess the situation and take appropriate action, including carrying out applicable emergency response procedures (in accordance with the ICAO Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods – Doc. 9481), contacting ground operations for information about the dangerous goods on board and diverting the aircraft if necessary.
- 10.7 An air operator should ensure that the responsibilities of cabin crew, the pilot-in-command and ground handling personnel are clearly defined, and that appropriate emergency response measures are available for in-flight discoveries of suspected dangerous goods.